

The Honorable Ricardo Martinez

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

UNITED STATES OF AMERICA, et
al.,

Plaintiff,

v.

STATE OF WASHINGTON,

Defendant.

NO. C70-9213M
Subproceeding No. 01-1

(CULVERTS)

DECLARATION OF PAUL J. WAGNER
IN SUPPORT OF WASHINGTON'S
MOTION FOR SUMMARY
JUDGMENT

I, Paul J. Wagner, declare as follows:

1. I am the Biology Branch Manager for the Environmental Services Office of the Washington State Department of Transportation ("WSDOT"). I have held this position or its equivalent for 12 years and I have worked for the WSDOT as a biologist for a total of 16 years. My duties include management of the WSDOT's Fish Passage Barrier Removal Program. I have a BS degree in natural history from Juniata College and have done graduate coursework in Salmonid Ecology at The Evergreen State College. The statements in this declaration are based on my personal knowledge and upon my review of official agency records. I previously supplied a declaration in support of Washington's Motion for Leave to set up Counterclaim. This declaration updates the information supplied in that declaration.

1 2. One of the problems facing salmon and trout populations is an inability to
2 migrate into usable stream habitat for rearing and spawning because of barrier culverts at
3 stream crossings. Many roads in Washington use culverts to span streams and other
4 watercourses.

5 3. While all state highway culverts are designed to provide fish passage, some
6 culverts become barriers over the course of time due to structural failure, blockage by
7 sediment or debris, or changes in the stream hydrology. Changes in stream basin conditions,
8 as well as extreme storm events, can affect the volume and rate of runoff entering a stream.
9 This can lead to deep scouring at culvert outfalls during and high water velocity during high
10 flows and shallow water depths within the culvert during periods of low flow. These
11 conditions can be barriers to fish passage. Additionally, some properly designed and
12 maintained culverts that function as designed have over time come to be recognized as
13 barriers as our scientific understanding of fish capabilities and behavior, particularly for
14 juvenile salmonids, has increased.

15 4. According to information from WSDOT's Transportation Data Office, there
16 are a total of about 83,380 centerline miles of public road owned by the federal, state, and
17 local governments in Washington. Other road owning public agencies face fish passage
18 barrier problems similar to the WSDOT's. The WSDOT is responsible for maintaining about
19 7,046 centerline miles of state highway and for corrected fish passage barriers associated
20 with those highways. By comparison, the federal government controls about 9,186 centerline
21 miles of roadway within Washington. The largest portion of this is under two federal
22 agencies with the United States Forest Service having 4,649 miles and the Bureau of Indian
23 Affairs with 1,469 miles.

24 5. The fish barriers that WSDOT has identified and is addressing comprise only a
25 portion of the many thousands of barriers that exist statewide. In many cases, streams with fish
26 barriers on the state highway system also have fish barriers owned by others upstream and

1 down stream of the highway crossing. This is exemplified by looking at a representative
 2 subset of 242 WSDOT barriers in the case area where habitat surveys have been completed.
 3 According to data provided by the WDFW fish passage database, about 116 or half of these
 4 have additional barriers downstream. Often multiple down stream barriers exist and in some
 5 cases, as many as 18 additional downstream barriers occur below these WSDOT crossings.
 6 Well over half of these 242 barriers (151) have additional barriers upstream of the WSDOT
 7 crossings. On average, more than 4 barriers occur upstream of these crossings and in some
 8 cases records show that up to 46 additional barriers, owned by other entities exist upstream of
 9 the WSDOT crossing. To realize the full potential of removing the fish passage barriers on the
 10 state highway system, fish barriers under many other ownerships will need to be removed.

11 6. Cooperative efforts between the Washington Department of Fish and Wildlife
 12 (“WDFW”) and the WSDOT have helped form the technical basis for methods used to
 13 assess, prioritize, and correct fish barriers in this state and elsewhere in the Pacific
 14 Northwest. The WSDOT and the WDFW have supported significant scientific research to
 15 advance knowledge in this area. In conjunction with the WDFW, the WSDOT has operated
 16 the Fish Passage Barrier Inventory and Removal Program since 1991. This program was
 17 originally funded by an allocation from highway construction funds. The purpose of the
 18 program is to identify and correct fish passage barriers created by state highway stream
 19 crossings. Program staff funded by the WSDOT use defined scientific and engineering
 20 criteria, approved by the WDFW, to determine whether each stream crossing owned by the
 21 WSDOT constitutes a barrier to any life stage of anadromous or resident fish. Crossings
 22 determined to be barriers are placed in the barrier inventory for correction. These fish
 23 barriers are then corrected in one of three methods: 1) by being incorporated into planned
 24 transportation improvement projects; 2) as part of typical road maintenance activities when a
 25 relatively minor level of work is needed; or 3) through a dedicated funding program
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1 specifically created for correcting high priority fish passage barriers. This third category is
2 known as the I-4 environmental retrofit funding.

3 7. Staff from the WDFW prepare an annual report entitled "WSDOT Fish
4 Passage Performance Report." A true and correct copy of the current program report from
5 May 2006 is attached to this declaration as Exhibit A. The report provides additional detail
6 regarding some of the matters explained in this declaration.

7 8. The WSDOT has been involved in inventories for fish barriers on the state
8 highway system for many years and has invested about \$7 million on this effort since 1991.
9 This effort has expanded as the criteria used by the WDFW for appropriate habitat has
10 changed. Between January 1992 and July 1995, streams up to 7% gradient slope were
11 considered to support salmon habitat and only these areas were inventoried. In 1995, the
12 standard was expanded to include streams up to 12% gradients and survey efforts were
13 correspondingly expanded. In 1998, the WDFW adopted a 20% stream gradient criterion,
14 which significantly increased the scope of the inventory needs. As of May 2006, the
15 collaborative program of the WDFW and the WSDOT has inspected 5,853 stream crossings
16 to identify fish passage barriers. The inventory of WSDOT highway stream crossings in the
17 case area was completed in December 2005, and we anticipate the inventory of entire state
18 highway system will be completed within the next three years. The WSDOT currently funds
19 field crews and associated support staff from the WDFW to inventory and prioritize the
20 barriers and provide preliminary engineering work for future correction projects. The
21 inventory and survey work for these fish barriers consists of extensive field surveys, which
22 provide detailed data on stream habitat and ensure a high level of confidence in our
23 prioritization process. Other agencies have completed fish barrier inventories at a faster rate
24 than ours, but these generally rely on aerial photos, maps or GIS and do not include extensive
25 surveys of the actual habitat components in the stream.
26

1 9. After identifying the universe of barrier culverts we prioritize the barriers for
 2 correction. The prioritization process ensures that we spend our limited funds where they
 3 can provide the greatest benefit to fish. In general, dedicated funding correction projects are
 4 targeted to provide the largest gains in productive habitat and for the fish stocks that are in
 5 the greatest need. Among the factors used to determine project priority are: (1) the
 6 proportions of the fish run that will benefit; (2) the species-specific production potential of
 7 the "gained" habitat; (3) the amount and type of habitat potentially available above the
 8 barrier; (4) the stock status of the species affected; and (5) the project cost. These factors are
 9 evaluated for each project and a numerical "priority index" is calculated. Projects are ranked
 10 from highest priority index to the lowest.

11 10. The WSDOT "dedicated fund" fish passage projects have provided a very
 12 significant benefit. Since 1991, the WSDOT has spent over \$21 million in construction
 13 dollars on dedicated funding fish passage barrier projects. This investment has eliminated
 14 63 high priority barrier culverts and opened access to over 411 miles of stream habitat to fish.
 15 The average cost of each correction project over the last 5 years is about \$540,000. As is the
 16 case for the federal barrier correction programs, the rate of correction of WSDOT barrier
 17 culverts is largely determined by the funding level provided by the legislature. According to
 18 current financial plans, the WSDOT expects to spend \$69 million for the dedicated culvert
 19 correction program over the next 6 biennia.

20 11. Fish barriers are also corrected as part of transportation improvements for
 21 safety and mobility. In addition to the "dedicated fund" correction projects mentioned above,
 22 since 1991 the WSDOT has removed 117 additional fish passage barriers during the course
 23 of routine road construction and maintenance work which opened up many more miles of
 24 habitat. This is a cost-effective means to address additional barrier culverts. The WSDOT's
 25 standard procedures require that all transportation projects, which require work within the
 26

1 ordinary high water mark of flowing streams, be reviewed for opportunities to eliminate fish
2 passage barriers.

3 12. The WSDOT funds an evaluation program to monitor the effectiveness of
4 each "dedicated" barrier removal project. Following completion, WDFW staff monitor
5 WSDOT barrier correction projects for one year to determine effectiveness. Design
6 corrections or modifications are made where necessary to ensure that fish passage is provided
7 in the long term. Select projects, typically involving more challenging designs, receive more
8 extensive monitoring.

9 13. Additionally, the WSDOT, in partnership with industry and research
10 organizations, the Alaska, California and Oregon transportation departments, universities,
11 WDFW, and the United States Forest Service, designed, constructed and operates a culvert
12 test facility at the Skookumchuk River Fish Hatchery near Tenino. At this one of a kind test
13 facility researchers can recreate the hydraulic conditions occurring inside culverts and can
14 scientifically study fish movement in culverts under controlled conditions. The WSDOT
15 uses this research to improve its understanding of the fish passage barrier problem and to
16 design effective correction projects.

17 I declare under penalty of perjury that the foregoing is true and correct.

18
19 DATED this 7th day of August, 2006.

20
21 
22 PAUL J. WAGNER